Since 1895, a number of investigators have suggested that the influence of specific internal secretions might easily be used for the explanation of the inheritance of acquired characters. Last year, an English evolutionist published a volume on "Hormones and Heredity" and suggested that environmental influences influencing an organ, or part, of the mother may set free chemical substances (hormones) that, carried through the blood to the ovaries, may affect the ova in such a way as to lead to similar changes in the same organ, or part, of the offspring. By such a mechanism he would attempt to account for a progressive evolution in the animal series. His theory would seem practically to be a modfiication of the pangenesis theory of Darwin with the substitution of "hormones" for Darwin's "gemmules."

Many physicians, too, have leaned toward Lamarckian or neo-Lamarckian theories that assume the inheritance of acquired characters and some of these have suggested that in such inheritance the incretions must be concerned. Those who have been trained in the methods of modern biology, however, usually reject Lamarckism, and attempt to explain the apparent inheritance of "acquired characters" for a generation or two by assuming either a "germinal injury" (in the sense of Forel's "blastophthoria") or a "parallel induction."

The consensus of biological opinion in this country is strongly opposed to the inheritance of acquired characters. Mendelian studies lend no support to the view that conditional influences can affect inheritance factors. Mendelism is, however, difficult if not impossible to apply to man. As some one has put it, "the propagation of man consists of a continual crossing of polyhybrid heterozygote bastards," not susceptible to analysis by Mendelian methods such as can be applied to the study of the propagation of plants and experimental animals. But if inheritance of acquired characters really occurred, why should there not be, as Conklin emphasizes, an abundance of positive evidence to prove it? When one plant or animal is grafted on another, there is no evidence that the influence of the stock changes the constitution of the graft. When an ovary is transplanted, the foster mother does not affect the hereditary potencies of the ova. Until more proof has been brought than has hitherto been advanced, we shall not be justified, so far as I can see, in accepting the theory that conditional influences change hereditary factors. There are, moreover, aside from the problem of the inheritance of acquired characters, enough relationships of the endocrine organs to heredity and development to long keep us rewardingly occupied.

CONCLUSION

Let me summarize in a few words the situation as I see it. The endocrine organs are of the greatest importance in normal development, their incretions exerting profound formative and correlative influences. In pathological development, the abnormal plenotypes that appear often point decisively to partial anomalies of constitution involving especially the ductless glands and their functions. Whether or not under normal or pathological conditions, hormones arising in the soma can so change the germ plasm of ova or sperm-cells as to account for certain mutations or for germ-cell injury is a question that deserves consideration and merits experimental test. Finally, the conjecture that conditional influences upon the soma can through hormonal production and transportation to parental gametes so modify the germ-plasm as to result in the inheritance of the conditioned modification seems, as yet, to have but little, if any, evidence to support it.

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AN ANALYSIS OF STUDENT GRADES AT WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

THIS work was undertaken with the idea of obtaining some definite data upon which to base opinions of students' grades during their medical course. As the data obtained were of great interest to the staff of this school it was thought advisable to publish them in order that they might be used for comparison with those of other schools.

The records of those students in the classes of 1914, '15, '17, '19, '20 and '21 who spent all

four years of their course in Washington University Medical School were studied. The class records before 1914 were not complete enough to average with the later records. The class of 1916 had only two members who spent all four years in this school, these records not being complete, and the class of 1918 finished its course in France, so these two classes were not considered in the analysis. In the six classes studied there were available the records of 89 students. From these records were copied the average for each year, the graduation age, degree at matriculation, and the school in which premedical training was taken.

In considering the graduation age of the students it was found that there was little variation from one year to another. The average graduation ages for the classes studied beginning with that of 1914 were 25, 26, 25½, 26, 26, and 24 years, respectively. Thus the average graduation age of the 89 students was approximately 25½ years. The variation between individuals was so slight that no relation between age and grade was worked out.

The number of students possessing bachelor's degrees upon matriculation was 14, or 15.73 per cent. of those studied. Eleven were A.B. degrees and three B.S. degrees. One might have expected a larger percentage of bachelor of science degrees from students interested primarily in the sciences. The average graduation age of these students was 26.64 years, or 1.35 years older than that of those without degrees. The average grade of the group with degrees was 82.21 per cent. as contrasted with 80.89 per cent. for that without degrees. Thus we see that the average man with a degree upon matriculation was 1.35 years older than the man without one, but that his grade was 1.32 per cent. higher than that of the undergraduate student. Is an increase of grade of 1.32 per cent. worth a time loss of 1.35 years in a medical student's career?

The grade averages by years for each class are given in Table I. Here we see that there is not much variation between the classes of the years studied. This fact would indicate that a uniform system of grading had been used for all classes, providing the class of stu-

TABLE I

Class	Av. Year I	Av. Year II	Av. Year III	Av. Year IV
1914	77.87%	80.31%	79.95%	82.11%
1915	79.21%	79.76%	84.51%	83.60%
1917	78.28%	78.81%	81.75%	84.02%
1919	76.67%	79.84%	81.45%	85.52%
1920	77.62%	81.48%	82.18%	83.68%
1921	79.80%	81.33%	81.96%	84.73%
Total Av.	78.24%	80.26%	81.97%	83.93%

General average for all classes for four years = 81.10%.

TABLE II

Amount of Variation	Per Cent. of Students							
	Year I-II		Year II-III		Year III-IV		Year I-IV	
	+	−	+	−	+	−	+	−
0-1%	3.41	12.50	6.82	5.68	8.99	5.62	7.78	4.50
1-2%	10.02	6.82	10.02	6.82	16.85	6.74	3.37	2.25
2-3%	3.41	5.68	9.09	11.36	10.11	3.37	5.62	2.25
3-4%	5.68	11.36	9.09	6.82	8.99	6.74	5.62	1.12
4-5%	6.82	.....	7.95	2.27	8.99	.....	7.78	4.50
5-6%	9.09	2.27	7.95	1.14	10.11	1.12	3.37	.....
6-7%	4.55	1.14	3.41	.....	4.50	1.12	8.99	.....
7-8%	2.27	.....	3.41	1.14	4.50	.....	4.50	.....
8-9%	4.55	.....	2.27	1.14	1.12	.....	10.11	1.12
9-10%	4.55	.....	1.14	.....	.....	.....	4.50	.....
10-11%	1.14	.....	1.14	.....	1.12	.....	4.50	.....
11-12%	3.41	.....	1.14	.....	.....	.....	1.12	.....
12-13%	1.14	.....	.....	.....	.....	.....	6.74	.....
13-14%	.....	.....	.....	.....	.....	.....	2.25	.....
14-15%	.....	.....	.....	.....	.....	.....	2.25	.....
15-16%	.....	.....	.....	.....	.....	.....	.....	.....
16-17%	.....	.....	.....	.....	.....	.....	1.12	.....
17-18%	.....	.....	.....	.....	.....	.....	1.12	.....
18-19%	.....	.....	.....	.....	.....	.....	2.25	.....
19-20%	.....	.....	.....	.....	.....	.....	1.12	.....

dent remained the same for each year. There is a gradual increase in the general average from the first to the fourth year of 4.69 per cent. As the same students are present throughout all four years, this either shows an improvement in the student's ability or, more likely, severe grading during the first years or lax grading during the last years of the course. The general average of the entire group for all four years is 81.10 per cent., which is a low B grade in our letter system. This gives us a numerical figure for our average students in the future.

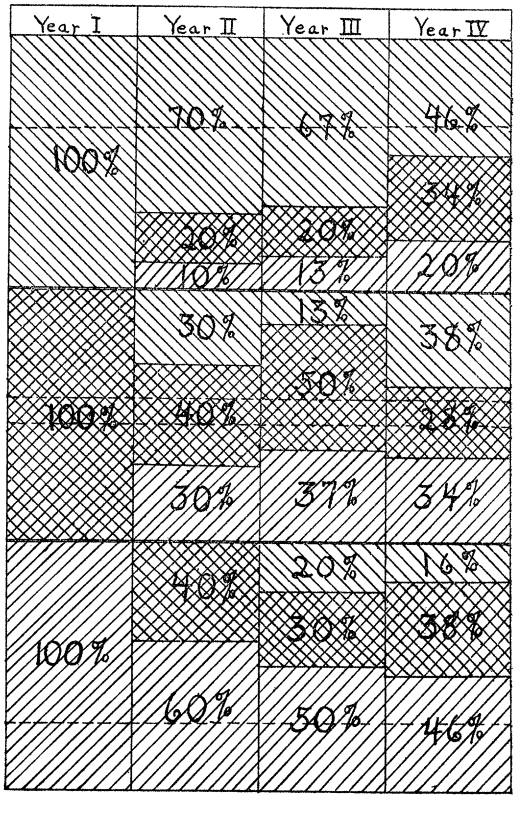
There was a great tendency toward variation in the grades of an individual from one year to the next. This is well shown in Table II in which the per cent. of students varying a given percentage in grade, either up or down, between the different years of the course is shown. There is always a larger proportion of the class showing an increase in grade as would be expected from the increase in general average. To show how inconstant the grades are from year to year we note that more than 36 per cent. of the students have a difference of over 8 per cent. between first and fourth year averages, and indeed, 3.62 per cent. show a difference of over 18 per cent.

In Table III the rank of the student in his class is considered. The men of each class were arranged according to rank, based on their first year averages, and the class then split into thirds, an upper, middle, and lower third. Each third was now considered 100 per cent. and the upper represented by left diagonal lining, the middle by cross hatching, and the lower by right diagonal lining. The proportion of the men of the upper third during the first year who fell into the middle third the second year is represented by the area of left diagonal lining in the middle division under year II. Similar changes in other groups may be followed in the same manner. It is obvious that a man might go from group 1 to group 2, then back to group 1 the third year, so that the left diagonal lining in group 1 for the third and fourth years does not represent the percentage of men who remained there constantly for four years, but that portion of the men who started in group 1 the first year who are there in the year observed. Therefore the interrupted line was inserted in order to indicate the percentage of men in each division who remained there constantly for every one of the four years.

This table shows that the upper and lower thirds of the class are the most constant in their rank, for 36 per cent. remained in the upper third constantly and 27 per cent. in the lower, while only 10 per cent. of the middle third remained there for four years. Those students who drop from the upper to lower third in the third year may be the ones primarily interested in the fundamental sciences, and not in clinical work. There are usually one or two such individuals in each class. We do get a surprising revelation of the inconstancy of a large proportion of the class.

Only 24.7 per cent. of the group studied remained constantly in one division for four years, 57.3 per cent. went up or down one division, and 18 per cent. up or down two

TABLE III



divisions during the course. This shows that no class could have been even approximately grouped for the entire course on the basis of the first year's averages.

Finally those men in the group who had first year averages of less than 72 per cent. were picked out. It was thought that these were the borderline men, students who might have been dismissed from school had their grades been only one or two per cent. lower. The object was to observe the further progress of this group with regard to the other students. There were 15, or 16.8 per cent., of the students with a first year average under 72 per cent. Forty per cent. of them had their premedical training at Washington University, 40 per cent. at the smaller colleges, and 20 per cent. at state universities.

At the end of the fourth year 40 per cent. of these men had grades above the average for the senior year, 20 per cent. ranked in the upper third of the senior class, 27 per cent. in the middle third, and only 53 per cent. in the lower third. Of the 20 per cent. in the upper third of the senior class, one third had premedical training at Washington University, one third at a small college, and one third at a state university. The middle and lower thirds were equally divided between the small colleges and the universities. So it would seem that if poor preliminary training were the cause for the low first year average of these students we must blame the universities equally with the smaller colleges, for the percentage of advance in grade was equally divided between students from Washington University and such colleges as Central, Missouri Valley, Southwestern, and Christian Brothers'.

As almost 50 per cent. of these men who might easily have been dismissed from school on their first year's record made mediocre and even excellent students during their senior year, the question arises as to how many of the men with first year grades just below 70 per cent. who are now dismissed from school might reach the upper third of their class were they allowed to remain. Can we say it would be less than 20 per cent.? Yes, because many questions are considered in giving a student a grade just under or just over 70 per cent., amongst them being just this possibility of improvement. However, these figures should make us in the future think even more carefully before declaring a student unfit for the study of medicine on the basis of his first year's record.

M. F. WEYMANN
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CHARLES BASKERVILLE

THE death of Charles Baskerville, last January, was a great calamity to the chemical profession. His end was premature—he was nearing 52 years of age—and it brought a poignant sense of bereavement to his numerous friends. He did not live to see his life's work done, but he departed from a world which will evermore be the richer for having once had him.

Deeply and peculiarly American, an aristocrat by birth, Charles Baskerville was nevertheless broad and cosmopolitan in all his educational work, and honored by his students, pedagogic associates and professional colleagues. A man of high quality whose poise and personality early established leadership, his cheerfulness, sympathetic helpfulness and constant productivity brought the admiration and respect of all who had the privilege of being near him.

For thirty years Charles Baskerville occupied a prominently successful position in chemical education (University of North Carolina, his *alma mater,* 1891-1904; College of the City of New York since 1904); but, in addition, he found time for the conduct of original researches of value (first on the rare earths and later on the chemistry of anesthetics), while his inventions in the refining and hydrogenation of vegetable oils, plastic compositions and reinforced metals are of recognized industrial importance.

In addition to 190 educational, scientific and technologic papers, Charles Baskerville was the author of the following books: "School Chemistry," 1898; "Key to School Chemistry," 1898; "Radium and Its Applications in Medicine," 1906; "General Inorganic Chemistry," 1909; "Laboratory Exercises" (with R. W. Curtis), 1909; "Progressive Problems in Chemistry" (with W. L. Estabrooke), 1910; "Quali-